

***Claim rejections-35 USC§102***

Claims 15, 17, 26 and 29-31 have been rejected under 35 U.S.C. 102(b) as being anticipated by Doucette et al. (U.S. Patent Number 3,513,627). The rejection is traversed.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990).

Doucette does not teach every element as set forth in the claims arranged as required by the claims. Claim 15 recites a means for directing a stream of air on the surface of packaging material to remove substantially all but a residual or trace quantity of hydrogen peroxide. The means for directing a stream is connected in sequence between a means for applying a hydrogen peroxide solution to a surface of a packaging material and a means for irradiating said packaging material with UV light. The claimed apparatus also comprises a means for advancing the packaging material continuously and sequentially from the applying means through the means for directing a stream of air and then to the irradiating means. Claim 26 recites features similar to claim 15 using different terminology. Claim 29 recites an air knife. The other claims subject to this rejection depend from one of these claims.

Doucette does not describe an apparatus comprising a means for directing a stream of air on the surface of packaging material to remove substantially all but a residual or trace quantity of hydrogen peroxide. Doucette does not describe any apparatus comprising an air knife. The Examiner has alleged that heaters (identified as figure 1:89) correspond to an air knife capable of directing a stream of heated air. This is clearly incorrect. There is no suggestion anywhere in Doucette that would indicate that any heaters in the Doucette

apparatus should be structured or arranged to direct any stream of air on the surface of packaging material. Indeed, it is not even clear that the plates identified by the number 89 in figure 1 are heaters. Doucette refers to contradictory structures for reference numerals 89 and 91. At column 4, lines 55-57, Doucette discloses that lamps 85, 87 and 89 and heater plates 91 (from figure 1) are omitted in the apparatus illustrated in figure 4. Moreover, an air knife is known in the art as a device designed to direct a high intensity laminar flow stream of air and would not be confused with a heater plate by any person of ordinary skill in the art.

The apparatus of Doucette figure 1 does include an air inlet 93 in the chamber C to admit sterilized room-temperature air in order to maintain a positive pressure in the chamber. *See*, Doucette at column 4, lines 31-38. However, there is no teaching or suggestion that the inlet creates or directs a stream of air in any way. In particular, Doucette does not teach any means of directing a stream of air on the surface of packaging material to remove substantially all but a residual or trace quantity of hydrogen peroxide.

The Examiner has alleged that substantially removing all but a residual or trace quantity of hydrogen peroxide is construed as a way of operating Doucette's device and not a distinguishing feature. However, such a construction ignores a fact that would be immediately appreciated by a person of ordinary skill in the art. Namely, that to constitute a means for directing a stream of air on the surface of packaging material to remove substantially all but a residual or trace quantity of hydrogen peroxide, as recited in the claims, requires some structure at a minimum that is capable of creating a directed stream of air, *e.g.* an air knife, and that the stream of air must be such as to remove substantially all but a residual or trace quantity of hydrogen peroxide. Thus, this way of operating implicitly requires certain structural and functional features properties that the Doucette apparatus is not designed for or capable of.

Doucette fails to disclose all the elements of the claimed invention arranged as required by the claims. Therefore, Doucette failed to anticipate the invention. Consequently, the rejection is improper and should be withdrawn.

***Claim rejections-35 USC§103***

Claims 18, 27 and 32 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Doucette et al., *supra*, in view of Castberg et al. (U.S. Patent Number 5,744,094). The rejection is traversed.

The prior art fails to establish a proper *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

M.P.E.P. § 2143.

The Examiner has alleged that the difference between Doucette and the claimed subject matter is recitation of an eximer lamp. The Examiner alleges that Castberg teaches use of an eximer lamp.

However, as discussed above Doucette fails to teach or suggest other elements of the claims. Claim 18 depends from claim 15, claim 27 depends from claim 26, and claim 32 depends indirectly on claim 29. As discussed above, Doucette fails to teach or suggest an apparatus comprising a means for directing a stream of air on the surface of packaging material to remove substantially all but a residual or trace quantity of hydrogen peroxide, or in particular an air knife. Furthermore, Doucette does not suggest that a means for directing a

stream of air is connected in sequence between a means for applying a hydrogen peroxide solution to a surface of a packaging material and a means for irradiating said packaging material with UV light. The combination of Castberg with Doucette fails to remedy the deficiencies in Doucette.

Castberg and Doucette fail to teach all the elements of the claimed invention arranged as required by the claims. Therefore, Castberg and Doucette do not support even a *prima facie* case of obviousness. Consequently, the rejection is improper and should be withdrawn.

Claims 4 and 28 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Doucette et al., *supra*, in view of Kodera et al., (U.S. Patent Number 3,513,627), DiGeronimo (U.S. Patent Number 4,494,357) and further in view of Loliger et al. (U.S. Patent Number 3,692,468). Claims 2-3, 5 and 21-25 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Doucette et al. in view of Kodera et al. and further in view of DiGeronimo. Claim 6 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Doucette et al. in view of Kodera et al., DiGeronimo and further in view of Lagunas-Solare et al. (U.S. Patent Number 5,364,645). These rejections are also traversed.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

M.P.E.P. § 2143; *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1458 (Fed. Cir. 1998) (“[T]he suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness.”).

Doucette fails to teach or suggest elements of the claimed invention as discussed above. Doucette teaches a very different method and apparatus. There is no indication in Doucette or elsewhere in the prior art that those in the art ever considered that the

arrangement of elements recited in the present claims would provide advantages and efficiencies such as achieved by the present invention. Thus, there would have been no reason to modify Doucette to arrive at the present invention.

In the absence of any teaching or principle known to those of skill in the art leading to the present invention, the Examiner has selected secondary references that are purported to teach one individual modification or another using impermissible hindsight in an attempt to reconstruct the presently claimed invention. However, it is not sufficient to find all the elements of the invention somewhere in the prior art. A finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of the present invention to make the combination in the manner claimed is required to make out a proper *prima facie* case of obviousness. *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000). It is impermissible to first ascertain factually what applicants did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct applicant's invention from such prior art. *See, e.g., Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 550 (Fed. Cir. 1985); *see also, In re Shuman*, 150 U.S.P.Q. 54, 57 (C.C.P.A 1966).

Kodera teaches a method and apparatus that differs from the claimed invention in ways that are different from Doucette, but the combination of Doucette with Kodera does not correct the deficiencies of either reference. Kodera does not teach a means for advancing packaging material continuously and sequentially (1) from a means for applying a hydrogen peroxide solution to a surface of a packaging material (2) through a means for directing a stream of air on the surface of said packaging material to remove substantially all but a residual or trace quantity of hydrogen peroxide and then (3) to a means for irradiating said

packaging material with UV light having a UV wavelength between 200nm and 320nm as required by claims 15, 26 and 29.

The recitation of the means for advancing packaging material requires that the elements be arranged in the order recited along the path of advancement. Kodera does not teach or suggest the arrangement required by the claims. Kodera also does not teach or suggest the recited elements connected in sequence as required by claims 15 and 26.

Doucette discloses a method in which material is wetted with germicidal liquid first using a sponge, then travels past a UV light source while wet and then is wetted again in bath, exposed to additional UV light sources, wetted a third time in bath and then dried using heater plates. Doucette at col. 3, lines 24-65 and FIG. 1.

Kodera discloses a method for sterilizing packaging material in which material is first wetted with  $H_2O_2$ , by a misting device, then exposed to UV radiation while wet, and only then is the material dried. Kodera at col. 5, lines 34-51 and FIG. 1. Kodera does not teach or suggest a method in which packaging material is wetted with  $H_2O_2$ , the  $H_2O_2$  is substantially removed, and thereafter the packing material is irradiated with UV light, in that order, as required by the rejected claims.

Neither Kodera nor Doucette or the combination thereof teach or suggest the order of steps required by the present claims or an apparatus structured so as to carry out the steps in the order required. DiGeronimo, Loliger and Lagunas-Solare do not cure the defects of Doucette and Kodera. DiGeronimo is cited for allegedly teaching irradiating at 254 nm. Loliger is cited for allegedly teaching a peroxide bath temperature of 60 °C. Lagunas-Solare is cited for allegedly teaching the use of polychromatic light. DiGeronimo, Loliger and Lagunas-Solare, even when all are combined with Kodera and Doucette, fail to remedy the deficiencies of Doucette and Kodera.

The order of the steps required by the claims and the use of a directed stream of air to remove all but a residual amount of hydrogen peroxide prior to irradiation is a direct reflection of the surprising discovery that such a method could provide the synergistic killing provided by irradiating material that has been wetted with H<sub>2</sub>O<sub>2</sub> without the disadvantages of permitting the H<sub>2</sub>O<sub>2</sub> to remain on the material. During the course of prosecution, ample evidence has been provided that it was surprising to the those of skill in the art that the methods and apparatus of the invention could work as effectively as has been demonstrated.

There is no principle that is taught or suggested in the prior art that would lead a person of ordinary skill in the art to select and combine the particular elements of Doucette and Kodera and the other references and arrange those elements in the manner required by the claims. It is not enough that one of skill in the art would be aware of the individual elements comprising the invention. *See, In re Rouffet*, 47 U.S.P.Q.2d 1453, 1458 (Fed. Cir. 1998)(“The examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.”)(emphasis added)).

For at least the foregoing reasons, the rejections under 35 U.S.C. § 103 are improper and should be withdrawn.

**CONCLUSION**

In view of the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order. Such action is earnestly solicited.

In the event that there are any questions relating to this application, it would be appreciated if the Examiner would telephone the undersigned concerning such questions so that prosecution of this application may be expedited.

The Director is hereby authorized to charge any appropriate fees that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

BUCHANAN INGERSOLL PC

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By: /Christopher L. North/  
Christopher L. North, Ph.D.  
Registration No. 50433

P.O. Box 1404  
Alexandria, VA 22313-1404  
703.836.6620